

An Examination of the Potential Social Opportunities in Museums
for Children with Autism Spectrum Disorder

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2013

A thesis submitted to The University of the Arts in partial fulfillment of the requirements for the
degree of Master of Arts in Museum Education

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ABSTRACT

This thesis examines the potential social opportunities in museums for children with autism spectrum disorder (ASD), and how the inclusion of children's specific interests can potentially encourage the practice and development of social skills such as collaborations, stimulating conversation, initiation, leadership, and independence in the museum.

In this study, six families of children with ASD each took a visit to a Philadelphia museum of their choice. During these visits, parents were asked to observe their child's behaviors in the museum and then respond to a post-visit survey regarding such behaviors, as well as the family's overall experience. Data collected from parents' observations and responses to the survey allowed for the assemblage of six case studies detailing each child's experience. An analysis of these details suggests that there are a great deal of social opportunities for children with ASD in museums and that, additionally, the museum environment is a positive and socially beneficial place for children on the spectrum.

DEDICATION

To Bret,
For reminding me that my everyday struggles
are lesser than the battles faced by others.

ACKNOWLEDGEMENTS

This thesis would not have been possible without the guidance of my graduate advisor, Helen M. Shannon, PhD. I would also like to thank the members of my committee, Patricia Maunder and Paul Adorno, for their considerable assistance and support. Recognition is additionally due to David Thomas and Lisa Jo Rudy for the significant suggestions and input they have provided throughout this process.

Thank you to the many individuals from both the museum field and autism community who provided resources, assistance, and support throughout this project, including all of the enthusiastic participating families and museum institutions. Special thanks to Dawn Hoyt from ASCEND, Karen Krivit from Elwyn and the Philadelphia Autism Network, Kim Wilson from Special People in Northeast, Inc. and Northeast Families for Autistic Support, and Lauren Johnson from ASERT Autism Resource Center. Additional thanks goes to Monica Zimmerman from the Pennsylvania Academy of the Fine Arts, Timshel Purdum from The Academy of Natural Sciences of Drexel University, and Kristina Bianco from the National Constitution Center.

Finally, I would like to thank my family and friends for their endless support and encouragement throughout my educational endeavors, as well as the eight incredibly talented and intelligent women with whom I have had the pleasure of sharing my graduate experience with.

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NOMENCLATURE

Autism Spectrum Disorder (ASD): a new term found in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, abbreviated as DSM-5, that reflects a scientific consensus that four previously separate disorders are actually one single condition with different levels of symptom severity. ASD now encompasses what were previously known in DSM-IV as autistic disorder (autism), Asperger syndrome (or Asperger's), childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS). ASD is characterized by challenges in social communication and social interaction, as well as restricted repetitive behaviors, interests, and activities (RRBs). Today, all of these characteristics are required for the diagnosis of ASD.¹

Informal Educational Setting: a general term for an educational environment outside of the standard school setting. Museums, libraries, zoos, after-school groups, other community-based organizations, and cultural institutions are all examples of informal education settings.

Specific Interests: the obsessive interest over a certain subject developed by an individual with ASD that may appear to increase in intensity and focus over time. This interest may affect the individual's schooling, home life, and social interactions with others due to their inability to direct their thoughts away from the topic. Specific interests have also been referred to as circumscribed interests, preservative interests, and restricted interests.²

¹ American Psychiatric Association, "Highlights of Changes from DSM-IV-TR to DSM-V," May 2013, accessed July 25, 2013, <http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsm-5.pdf>.

² Mikle South, Sally Ozonoff, & William M. McMahon, "Repetitive behavior profiles in Asperger syndrome and high-functioning autism," *Journal of Autism and Developmental Disorders* 35 (2005): 147.

Chapter 1

Introduction

The motivation behind my interest in the topic of autism in the museum developed over many years of observing my, now 16-year-old, brother struggle in school and all unfamiliar social settings that he has unwillingly encountered throughout his life. For years, I watched on in concern and confusion as repetitive behaviors and obsessions developed, and personal relationships and communication skills diminished. The cause of these concerns, along with his struggles in school, all seemed uncertain until he was diagnosed with Asperger Syndrome at age 12. From then on, it became clear that his behaviors were not the result of a newly developed diffidence, but part of the effects and features of being on the autism spectrum.

Some of my brother's most significant struggles include social communication, learning in a standard school setting, and forming personal relationships, all of which are common characteristics amongst individuals on the spectrum. Obsessive interest in specific subjects is another characteristic of his diagnosis. Currently, his interests include dog breeds, wildlife, and the sport of outdoor fishing. These interests are so strong that he can spend hours a day discussing, reading, and researching them without ever getting bored. Unlike most topics of conversation, he can talk about these specific subjects without the support of cues or encouragement. If you ask him how his day at school went, you get a one-word answer. But if you ask him what his favorite breed of dog was, you get a detailed and logical explanation about why the Newfoundland is the most intelligent and loyal breed.

From a young age, my brother had never been one for group activities, whether that meant joining a club, playing a team sport, or getting involved in community organizations. He was always perfectly content spending time by himself and engulfing himself in his favorite

subjects. That is, until the summer he went to camp. For four weeks, my seemingly reticent little brother attended a sleep-away camp in Vermont, called Camp Akeela. Specifically designed for individuals diagnosed with Asperger Syndrome or a non-verbal learning disability, the camp's mission is to provide a supportive community where campers can improve their social skills. Camp Akeela is located on 400 acres in the Green Mountains. The grounds include a farm, climbing course, and an art studio among other amenities, but most importantly, a small lake where campers are allowed to fish.

When my brother left for camp that summer, I had fairly significant doubts about what the outcome of this experience would be. Truth be told, he was not so certain about the whole idea himself. To everyone's surprise, he returned home with new friends and nearly 100 fishing stories. He had enjoyed his time away so much that he went back the next year and had another fun-filled summer of fishing with friends. Camp had allowed him to make friends with those of similar interests and to practice valuable social skills by encouraging such interests. I had never imagined that my brother with Asperger Syndrome could, not only benefit from, but also thrive in such a social environment. I began to ask myself, could the same concept work in a museum?

Research Question

Can museum visits for children with autism spectrum disorder be socially beneficial? And what are the social benefits of museum visits for children with autism spectrum disorder?

Informal educational settings, such as museums, are often considered challenging for individuals with autism spectrum disorder (ASD) due to high noise levels, bright lights, crowds, lines, and social expectations, such as maintaining proper voice volume and controlling

emotional outbursts.³ For these reasons, many parents of children with ASD assume that a museum visit would be a negative experience and that their child would be a cause of concern amongst museum staff and other visitors.⁴ Unfortunately, these pre-conceived notions are causing parents of children with ASD to avoid such settings altogether, when in reality a museum experience could be greatly beneficial and provide numerous social and learning opportunities for their child.⁵

In many instances, informal educational settings can actually trump settings like the classroom when attempting to reach and teach a child with ASD. This is, in part, due to the lack of formality and pressure on the child to succeed. As Frank Oppenheimer, founder of the San Francisco Exploratorium, would say, “No one ever failed a museum.”⁶ Classroom settings and standard teaching practices can be ineffective to children with ASD due to difficulty processing verbal communication. Museums, however, are naturally designed to cater to visitors of all types of learning styles. Therefore, many museums are already a natural fit for individuals on the spectrum.⁷

Museums cover a wide range of topics of which a child would unlikely be exposed to in a classroom setting. Because most museums are so subject-based, they have the ability to attract and engage the specific interests of children with ASD. A child’s inexplicable interest in trains would most likely go unacknowledged in school. However, there are at least 75 railway

³ Center for Disease Control and Prevention, “Autism Spectrum Disorders: Facts About ASDs,” last modified March 29, 2012, accessed November 4, 2013, <http://www.cdc.gov/ncbddd/autism/facts.html>.

⁴ Lisa Jo Rudy, *Get Out, Explore, and Have Fun! How Families of Children with Autism or Asperger Syndrome Can Get the Most out of Community Activities* (Philadelphia, PA: Jessica Kingsley Publishers, 2010).

⁵ Jessica Naudziunas, “How To Make Museums More Inviting For Kids With Autism,” National Public Radio, June 18, 2013, accessed June 19, 2013, <http://www.npr.org/blogs/health/2013/06/18/193092510/how-to-make-museums-more-inviting-for-kids-with-autism>.

⁶ Elaine Heumann Gurian, “The Molting of Children’s Museums?” in *Civilizing the Museum: Collected Writings of Elaine Heumann Gurian* (New York: Routledge, 2006), 22.

⁷ “Opportunities,” Autism In The Museum, accessed March 6, 2013, <http://www.autisminthemuseum.org/p/autism-in-museum-opportunities.html>.

museums in the United States alone.⁸ Behavioral studies have shown that a child with ASD is more likely to engage in an activity when that activity incorporates the subject of their specific interest. In addition, such studies show that children with ASD are likely to exhibit positive social behaviors when participating in activities related to the topics of their specific interests.⁹

Research Claim

Cases developed through my own research study suggest that museums have the ability to go beyond educational benefits and provide positive social opportunities for children with ASD. Over the course of three months, six families of children with ASD each took part in a museum visit to one of three popular Philadelphia museums: the Academy of Natural Sciences of Drexel University, the Pennsylvania Academy of the Fine Arts, or the National Constitution Center. The families were encouraged to visit the museum that most related to their child's specific interest. Qualitative data were collected in order to provide valid information for the six detailed case studies. This data comprised of the parental observations of the children's actions, behaviors, and choices in the museum.

The studies from this research suggest that family visits to museums have the potential to provoke collaborations and to stimulate conversation, initiative, leadership, and independence in children with ASD. While some children remain loyal to their specific interests in the museum, others may find the courage to explore new interests and experiences provided in the exhibits.

⁸ "List of Railway Museums," Wikipedia: The Free Encyclopedia, last modified October 2012, accessed November 4, 2013, http://en.wikipedia.org/wiki/List_of_railway_museums#United_States.

⁹ Mary J. Baker, Robert L. Koegel, and Lynn Kern Koegel, "Increasing the Social Behavior of Young Children With Autism Using Their Obsessive Behaviors," *Journal of the Association for Persons with Severe Handicaps* 23 (1998): 300-308. ; Mary J. Baker, "Incorporating the Thematic Ritualistic Behaviors of Children with Autism into Games: Increasing Social Play Interactions with Siblings," *Journal of Positive Behavior Interventions* 2 (2000): 66-84. ; Brian A. Boyd et al., "Effects of Circumscribed Interests on the Social Behaviors of Children with Autism Spectrum Disorders," *Journal of Autism & Developmental Disorders* 37 (2007): 1550-1561.

Family visits to museums whose content and collections are similar to the specific interests of their child with ASD (e.g. cars, dinosaurs, wildlife, etc.), will provoke the practice and development of social skills and behaviors. However, those museums that do not directly relate to the child's specific interest also prove to encourage positive social behaviors. Based on the results of this thesis study, museum visits prove to be an overall valuable experience and provide positive social opportunities for children with ASD.

Chapter 2

Review of the Literature

What Is Autism Spectrum Disorder?

According to the fifth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V), published May 18, 2013, the conditions formerly known as autism disorder (autism), Asperger syndrome (Asperger's), childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) no longer exist separately, but all fall under the diagnosis of autism spectrum disorder (ASD). Autism spectrum disorder is characterized by challenges in social communication and social interaction, as well as by repetitive behaviors and obsessive interests. Today, all of these characteristics are required for the diagnosis of ASD.¹⁰

Though seemingly straightforward, the characteristics of ASD are actually quite vast and diverse. Individuals with ASD may possess a number of challenges that can range in both occurrence and severity. These additional challenges include:

- Difficulty processing spoken or written language, or difficulty using language in a typical manner
- Sensory sensitivity, including both over and under-response to touch, light, sound, smell, and/or the need for constant movement
- Social anxiety, which may be evident in traits such as difficulty making eye contact, holding social conversations, and participating in collaborative work or play
- Need for sameness and repetition, which may lead to anxiety in unfamiliar settings and activities

¹⁰ American Psychiatric Association, "Highlights of Changes from DSM-IV-TR to DSM-V," May 2013, accessed July 25, 2013, <http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsm-5.pdf>.

- Obsessive interest in a single topic or subject¹¹

The sum and severity of these challenges can cause the lives of the individuals affected to range from slightly altered to severely restricted, hence the reasons why the condition is called a spectrum disorder.

A spectrum disorder means that each individual's circumstance may be greatly different than the next; there is a broad spectrum of traits and challenges. This range of behaviors and abilities are ordered on a scale of functionality, which is then used to describe the individual as either high or low functioning. Levels of functionality can be determined based on individuals' abilities to use verbal language, successfully engage with others, and take part in typical activities with or without support. Individuals with the inability to communicate verbally and perform everyday activities such as eating, cleaning, and taking care of one's self are considered low functioning on the autism spectrum. Individuals with the ability to communicate verbally, complete everyday tasks, and live fairly typical lives without the help and support of others, but who may have social anxieties or trouble fully expressing themselves and their needs, would be considered high functioning.¹²

Americans with Disabilities Act

Since 1990, the Americans with Disabilities Act (ADA) has protected the rights of individuals with ASD against public discrimination in relation to employment, public entities, accommodations, commercial facilities, and telecommunications. In 2010, Titles II and III of the ADA were revised to include legal requirements for public facilities to provide and maintain

¹¹ American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR: Text Revision* (Washington, DC: American Psychiatric Press Incorporated, 2000).

¹² American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR: Text Revision* (Washington, DC: American Psychiatric Press Incorporated, 2000).

accessibility for all individuals.¹³ Since the institution of these requirements, museums and museum experts across the country have conducted research and made changes in their facilities in order to comply with the ADA standards. Such changes include physical exhibit and structure adaptations, as well as improving program availability and access for visitors with disabilities.¹⁴ Today, a large majority of the literature existing on autism in the museum specifically relates to these issues of visitor accessibility.

Current Literature

The current literature regarding accessibility for visitors with ASD examines ways in which museums can accommodate their diverse and various needs. Potentially the most common accommodation consideration in museums is that of sensory sensitivity, such as the dimming of lights and reducing the volume on audio components in exhibitions, so as to not over-stimulate. Other accommodations may include offering specific hours or programs in which the general public is not allowed to attend, providing quiet rooms and weighted jackets for visitors who may need to calm or compose themselves due to overstimulation or anxiety, and utilizing specific tools in order to better engage individuals who may struggle to focus or pay attention in unfamiliar and exciting settings such as the museum.¹⁵

Accessibility is a pertinent issue and must be considered by all museums and public institutions. However, when it comes to the subject of autism, both in museums and the medical field, researchers have primarily sought to concentrate on the disorder's vast array of challenges

¹³ Americans With Disabilities Act of 1990. Public Law 101-336. 108th Congress, 2nd session (July 26, 1990).

¹⁴ U.S. Department of Justice, Civil Rights Division, *Maintaining Accessibility in Museums*, last modified April 29, 2009, accessed January 28, 2013, www.ada.gov/business/museum_access.htm.

¹⁵ U.S. Department of Justice, Civil Rights Division, *Maintaining Accessibility in Museums*. ; Jil Kennedy, "Inclusion in the Museum: A Toolkit Prototype for People with Autism Spectrum Disorder," MA Thesis, University of Oregon, 2006.

and restrictions, rather than to seek any positive potential. In the museum field, much of the literature regarding visitors with ASD depicts the difficulties of becoming an accessible institution, as well as being prepared to handle and address the needs and challenges of such visitors. In the medical field, a great deal of the literature is found to focus on the psychological and social challenges of ASD, as well as methods of minimizing typical traits and behaviors associated with the disorder. Between the two fields, the majority of research on the subject has been focused on easing the challenges of autism and finding ways to suppress the symptoms. In contrast, few have considered the positive aspects of what individuals with autism are capable of achieving and, further, what can be gained when provided with the opportunity to actively participate and engage in museum visits.

Aside from the obvious educational benefits of museum visits, museums also offer a wealth of social opportunities. Such opportunities are especially valuable to children with ASD who might not otherwise receive such opportunities at home, in school, or in other social settings. One of the most noted experts on this subject is Lisa Jo Rudy, a writer, researcher, consultant, museum professional, and mother of an 18-year-old boy with autism. Rudy has 20 years of museum experience developing exhibits, interactives, books, and educational programs for adolescents both with and without disabilities. She manages multiple websites and has written blogs, articles, and a book entitled *Get Out, Explore, and Have Fun!*, which examines how families of children with autism or Asperger Syndrome can benefit from active participation in clubs, organizations, and community involvement.¹⁶

Rudy's book explores the benefits of participating in activities such as team sports, youth groups, faith communities, visual and performing arts, summer camps, and of course zoos,

¹⁶ Lisa Jo Rudy, *Get Out, Explore, and Have Fun! How Families of Children with Autism or Asperger Syndrome Can Get the Most out of Community Activities* (Philadelphia, PA: Jessica Kingsley Publishers, 2010).

aquariums, and museums, just to name a few. Using both professional knowledge and opinion, as well as personal experiences, Rudy details basic information about each activity, how to choose the right one for your child, how to prepare for it, and most importantly, why it matters that your child get involved. According to Rudy, “The most important reason to get involved with museums, though, is this: your child may discover that he can learn, interact, explore, and even connect with others in museums, even if he can’t achieve those goals in school.”¹⁷

Individuals with ASD generally tend to have a difficult time in school, particularly after Grade 3 when multisensory, interactive, and experienced-based learning is replaced with textbooks, lectures, and exams. Most ASD students experience a decline in what is considered academic achievement during this time due to the fact that the criteria with which their success is measured revolves around the ability to learn and communicate verbally. Verbal communication is perhaps one of the most common challenges of the disorder. Due to such difficulties, even students who achieve academically are likely subject to bullying and social exclusion.¹⁸

The free-choice, informal learning environments of museums are a natural fit for individuals with learning disabilities. They provide visitors with multisensory and interactive learning opportunities that are significantly more appropriate for individuals on the spectrum than academic textbooks and test methods. As stated by Rudy on her website *Autism In The Museum*, “museums have the freedom to engage learners where they are – and not where others would like them to be.”¹⁹ Museums, therefore, have the ability to reach, teach, and engage individuals with ASD on a level typically unobtainable by today’s education system.²⁰

¹⁷ Rudy, *Get Out, Explore, and Have Fun!*, 109-110.

¹⁸ “Opportunities,” *Autism In The Museum*, accessed March 6, 2013, <http://www.autisminthemuseum.org/p/autism-in-museum-opportunities.html>.

¹⁹ “Opportunities.”

²⁰ *ibid.*

Rudy's personal narratives of the experiences had by her son, along with various other accounts from museum professionals, suggest that visitors with ASD have much to gain from participation in museum visits. Museums provide individuals with the opportunity to visit new places, try new things, and stretch beyond the boundaries of one's comfort zone. Visits provide the chance for visitors to meet others with similar interests, form friendships, and form lifelong connections. Family visits to museums can enhance and encourage collaboration, social, and basic interest skills, such as sewing or gardening, as well as foster new interests for children with ASD. Active family participation in museums can also increase children's confidence levels and build character and independence, all of which could someday affect the likelihood of the child securing potential job and career opportunities in the future.²¹

Perhaps one of the most effective ways to engage a child with ASD in a museum visit is to cater to the child's specific interest. Specific interests, also referred to as circumscribed, preservative, or restricted interests, can be defined as an obsessive interest of an individual with ASD that may appear to increase in intensity and focus over time. The development of specific interests is thought to be more prevalent in individuals considered to be high functioning on the spectrum. Specific interests can affect the development of social relationships due to the fact that individuals with ASD become fixated on discussing only these very distinct interests and nothing else, causing peers to frequently avoid and exclude them.²² However, studies in recent years suggest ways in which individuals' specific interests can be used to actually motivate positive social behavior in children with ASD in settings such as home and school. The following section details three such studies that resulted in this discovery.

²¹ Rudy, "Museums, Zoos, Aquariums, and More," in *Get Out, Explore, and Have Fun!*, 107-124.

²² Mickle South, Sally Ozonoff, & William M. McMahon, "Repetitive behavior profiles in Asperger syndrome and high-functioning autism," *Journal of Autism and Developmental Disorders* 35 (2005): 145-158.

Existing Behavioral Case Studies

In 1998, Mary J. Baker, Robert L. Koegel, and Lynn Kern Koegel of the University of California at Santa Barbara initiated the first study on the incorporation of, what they termed, the restricted interests of children with ASD as themes in socially stimulating activities. In the study, three children with ASD, ages 5-9, were observed interacting with peers within their school setting. During an initial observation, the children were observed in lunch and recess settings where they were encouraged to participate in games and activities with their peers. During this time, all three children exhibited low levels of interest and social interaction. In a second situation, when the children's specific interests were integrated into the theme of the activities, all three exhibited an increase in desired social behaviors and peer interaction.²³

During one- and two-month follow-up observations, the three children continued to show increase in social interactions amongst peers whilst participating in interest-themed activities. Perhaps even more significantly, all three children also began to exhibit an increase in social interaction during other activities that were previously of no interest. For example, when asked to partake in a game of tag that incorporated the child's restricted interest as a theme, the child was very willing to participate, as well as engage with others playing. But additionally, when asked to partake in a game that did not incorporate the child's interest, the child was also willing to participate and interact with others.²⁴

In 2000, Mary J. Baker initiated a separate study on the effect of incorporating the specific interests of children with autism into activities in order to increase social interaction between siblings. In her study, she observed the interactions of three children with ASD,

²³ Mary J. Baker, Robert L. Koegel, and Lynn Kern Koegel, "Increasing the Social Behavior of Young Children With Autism Using Their Obsessive Behaviors," *Journal of the Association for Persons with Severe Handicaps* 23 (1998): 300-308.

²⁴ Baker, Koegel, & Koegel, 300-308

between the ages of 5-7, with their siblings who all ranged from the ages of 8-9. In an initial observation, Baker recorded the levels of social interaction observed between siblings when participating in activities that did not incorporate the child's specific interest. She then observed the siblings' engaged in the same activities while integrating the theme of the child's specific interest, and compared the two settings.²⁵

Similar to the study conducted two years prior, all three children exhibited low levels of social interaction with their siblings in the initial observations when partaking in activities of unrelated interest. However, all three children exhibited a dramatic increase in interaction during the activities when their specific interests were integrated. Again, all three children additionally showed increase in social behaviors during follow-up phases that took place one and three months after the initial observations, and further engaged in other games with their siblings that did not incorporate their specific interests.²⁶

During a more recent study in 2006, researchers Brian A. Boyd, Maureen A. Conroy, G. Richmond Mancil, Taketo Nakao, and Peter J. Alter set out to compare the effects of specific interests to what they termed, "less preferred tangible stimuli" on the social behaviors of three children with ASD, ages 5-6.²⁷ Target children were observed 2-3 days a week across three to five classroom-based activities, such as snack and art, for sessions of 10-minute observations. Throughout these sessions, children's choices and social interactions with peers were recorded.²⁸

In almost all instances, when given the option to engage with a peer participating in an activity directly related to their specific interest versus a peer involved in an unrelated task, the

²⁵ Mary J. Baker, "Incorporating the Thematic Ritualistic Behaviors of Children with Autism into Games: Increasing Social Play Interactions with Siblings," *Journal of Positive Behavior Interventions* 2 (2000): 66-84.

²⁶ Baker, 66-84.

²⁷ Brian A. Boyd et al., "Effects of Circumscribed Interests on the Social Behaviors of Children with Autism Spectrum Disorders," *Journal of Autism & Developmental Disorders* 37 (2007): 1550-1561.

²⁸ Boyd et al., 1550-1561.

target children chose to engage with the peer with the similar interest. When they did, they were not only likely to interact more frequently with that peer, but were also likely to initiate social interaction sooner than when they engaged with others. When the children did choose to engage with peers participating in activities of unrelated interests, the children exhibited almost no social behavior and never once initiated interaction with their peers during these sessions.²⁹

The results from these studies confirm that the incorporation of a child's specific interest into games and other activities allow for the practice of social skills and behaviors that are later secured and can be applied in situations unrelated to their interests. They also suggest that by encouraging the interest in specific subjects and allowing children to actively engage and participate in activities that incorporate those subjects, the children are more likely to feel comfortable making connections and interacting in a social setting that may have otherwise caused anxiety. When children with ASD practice social skills on a frequent basis, they are more likely to become comfortable with those behaviors, and practice and exhibit them in other social settings. These previous studies imply that since museums and similar institutions are so subject-driven, they have the potential to provide the perfect opportunity for children with ASD to develop and practice behaviors in a real-life social setting.

Catering to Children with Autism in the Museum

Today, the Please Touch Museum in Philadelphia, Pennsylvania is one of 30 museums in the United States that has made catering to individuals with disabilities a priority within their institution. Please Touch's Play Without Boundaries Initiative began in 2010, with a special event that invited families of children with disabilities, such as autism, to experience the museum in a specialized and low sensory environment. During this ongoing annual event, the museum is

²⁹ *ibid.*

closed to the general public and adaptations are made throughout the exhibits in order to accommodate and better serve the needs of this audience. Lights are dimmed, sound components are lowered, and areas of the museum are reserved for quiet spaces. Families looking for an organized and secure experience are encouraged to create custom schedules and view museum maps prior to their visit. In addition, museum employees are specially trained on how to accommodate and interact with these visitors. Play Without Boundaries provides a safe and comfortable environment in which children with disabilities can experience the museum.³⁰ However, given the amount of modifications made to accommodate this audience, the event could be seen as more of a therapeutic experience rather than a natural museum experience.

Rather than creating therapeutic experiences for children on the spectrum, other institutions have recognized their potential to serve the autism community by capitalizing on their unique subjects and offering special programming for this audience. One such institution is the New York Transit (NYT) Museum of Brooklyn, New York, which in 2011, recognized its popularity amongst the autism community and developed a program called *Subway Sleuths*, specifically geared towards children with ASD. The program allows children, ages 7-12, to explore and indulge their interest of NYT history and trivia through engaging in interactive activities and hands-on experiences. Since one of the many challenges of ASD involves difficulty in processing and making sense of the hectic and occasionally confusing world we live in, individuals typically become drawn to predictable patterns such as public transportation routes and schedules. *Subway Sleuths* engages children in group and team activities specifically

³⁰ Jessica Naudziunas, "How To Make Museums More Inviting For Kids With Autism," *National Public Radio*, June 18, 2013. Accessed June 19, 2013. <http://www.npr.org/blogs/health/2013/06/18/193092510/how-to-make-museums-more-inviting-for-kids-with-autism>.

designed to encourage the practice and development of key social skills through the use of this specific interest.³¹

On August 13, 2011, Christine Haughney of *The New York Times* wrote an article praising the program and its ability to educate and engage its participants. The program encourages children with autism to connect and communicate in collaborative train and transit-related activities, which lead to furthering social development. Parents of *Subway Sleuths* are hoping that their children's participation in the program and the social experiences gained will lead to valuable skills and future opportunities. "If he's working somewhere it would help him to work in another group," Ms. Boehm said of her 8-year-old son with autism, "because a lot of times he keeps things to himself."³²

Great Britain, home of Thomas the Tank Engine, led the movement in developing transit museum programs for visitors with ASD in an effort to teach children through their unique interests. Both the London Transport Museum and the National Railway Museum in York, England, have received recognition for their events and programs that cater to this community. "Kids with autism treat moving trains as a natural reward," said Simon Baron Cohen, Professor of Developmental Psychopathology in the Departments of Psychiatry and Psychology at the University of Cambridge. "It catches their attention. Once you've got the child's attention, you can do many types of teaching."³³

³¹ Christine Haughney, "Children with Autism, Connecting via Transit," *The New York Times*, August 13, 2011, accessed February 13, 2013, http://www.nytimes.com/2011/08/14/nyregion/children-with-autism-connecting-via-bus-and-train.html?pagewanted=all&_r=0.

³² "Children with Autism, Connecting via Transit."

³³ "Children with Autism, Connecting via Transit."

Museum Visit Motivators

In a recent study performed in July 2013 by the Smithsonian Institution and the Information Policy and Access Center at the University of Maryland, ten families of children with ASD were surveyed about their motivations towards taking museum visits. A characteristic that arose as an important motivator included “spurring connections between museum exhibits and their child’s interest.” An additional, though less significant, motivator included “interacting with others during the museum visit.”³⁴ Though aware that the museum might be a good place to foster the specific interests of their children, parents who participated in the study did not readily acknowledge the potential social opportunities that museum visits provide. The purpose of this study was not intended to shed light on the social opportunities for children with ASD in museums, however families did acknowledge after their visits that “the museum experience emerged as a way to encourage the child’s independence in exploring and experiencing...”³⁵

The Following Research

Based on the literature and all previously explored research, I set out to determine whether or not social opportunities in museums exist for children with ASD. This research also set out to determine what those specific opportunities might be. The literature suggests that the museum environment can provide many opportunities for children on the spectrum based on the fact that museums tend to focus on very specific subjects, such as dinosaurs, automobiles, and wildlife. These same topics, along with many others, may be the shared specific interests of children with ASD. The literature also suggests that behaviors such as collaborations, stimulating

³⁴ “Improving the Museum Experiences of Children with Autism Spectrum Disorders and Their Families: An Exploratory Examination of Their Motivations and Needs and Using Web-based Resources to Meet Them,” *Curator: The Museum Journal* 56 (2013): 326.

³⁵ *ibid*, 329.

conversations, taking initiative, and exhibiting leadership and independence are all potential social opportunities that a child with ASD might experience in a museum that directly relates to his or her interests. It was these behaviors that were therefore designated as the specific behaviors for parents to look for when they participated in the following study, attending a museum with their child and responding to two surveys about the experience.

Chapter 3

Methodology

In order to determine the potential social opportunities and benefits of museum visits for children with ASD, I decided to invite six Philadelphia-area families with children on the spectrum to participate in a research study. The study involved sending each family to a museum of their choice, having the parents take notes of their child's behaviors during the visit, and then having the parents respond to a post-visit survey based on those notes and their overall experience. What eventually emerged from this strategy was a collection of six detailed case studies representing each of the families and their children's social experiences within the museum. Each case study was developed from careful analysis of the parents' notes and responses to the post-visit survey, as well as detailed discussions with the parents after their museum visit.

The Museums

The initial steps towards completing this research first required a determination of which Philadelphia museums would be best suited for the participant families. In an effort to cover a diverse range of subject matters and potential areas of interest, three specific institutions were singled out and selected. These three museums were the Academy of Natural Sciences of Drexel University, the National Constitution Center (NCC), and the Pennsylvania Academy of the Fine Arts (PAFA). By partnering with these institutions, the study was able to offer experiences for children with interests in topics such as art, history, and natural science.

The Academy of Natural Sciences was founded in 1812 and exists as the oldest natural science research institution and museum in the Western Hemisphere. The Academy's mission is

dedication to advancing research, education, and public engagement in biodiversity and environmental science. Some of the museum's signature exhibits include *Dinosaur Hall*, where more than 30 dinosaurs and other Mesozoic reptiles are represented, *Outside In*, a popular children's exhibit and nature center featuring live specimens from the Academy's collection, and the *Live Animal Center*, where over 100 live birds, mammals, reptiles, and invertebrates are housed and rehabilitated. *Glow: Living Lights*, a special exhibition that was on view May through September 2013, provided insight into the world of bioluminescence and the mysterious creatures with the natural ability to glow and produce light. In addition, the Academy maintains an African, Asian, and North American Hall, where 37 dioramas depict animals in their natural habitats from around the world.³⁶

The National Constitution Center, located on Independence Mall in Historic Philadelphia, opened its doors in 2003. Its mission is to illuminate constitutional ideals and inspire acts of citizenship. The Center offers a one-of-a-kind museum experience which includes hundreds of interactive exhibits, films and rare artifacts, the internationally acclaimed 360-degree theatrical production *Freedom Rising*, and the iconic *Signers' Hall*, where visitors can sign the Constitution alongside 42 life-size bronze statues of the Founding Fathers. The NCC's unique exhibits and interactive experience make it the nation's "most hands-on history museum."³⁷

The Pennsylvania Academy of the Fine Arts was established in 1805, as our nation's first museum and school for the fine arts. The museum maintains a world-class collection of both historical and contemporary works produced by leading American artists, as well as noted alumni and faculty. These works are housed and displayed in the institution's two historic buildings. The Furness-Hewitt Building, or the Historic Landmark Building, houses some of

³⁶ "Exhibits," The Academy of Natural Sciences of Drexel University, last modified 2013, accessed November 9, 2013, <http://www.ansp.org/visit/exhibits/>.

³⁷ "Who We Are," National Constitution Center, accessed November 9, 2013, <http://constitutioncenter.org/about>.

PAFA's earliest masterworks, such as Gilbert Stuart's *George Washington (The Lansdowne Portrait)* (1796) and Charles Wilson Peale's *The Artist in His Museum* (1822). In contrast, the Samuel M.V. Hamilton Building houses post-WWII works by both modern and contemporary artists, such as Robert Ryman, H.C. Westermann, Alice Neel, and Elizabeth Murray. Both buildings exhibit works of many art mediums, such as painting and sculpture, and are opened to students and the general public.³⁸

In an effort to entice families to partake in this study, the Academy of Natural Sciences, the National Constitution Center, and the Pennsylvania Academy of the Fine Arts all graciously agreed to waive participants' admissions. Therefore, each family was able to visit a museum free of charge. After contacting and settling and agreement with these museums, the next task became finding willing participant families who were interested in bringing their child on a museum visit.

The Participants

In order to connect with potentially willing participant families, an invitation (Appendix 1) was designed and sent to contacts at the following ASD-related organizations:

- ASCEND, the Asperger and Autism Alliance for Greater Philadelphia
- ASERT, the Autism Resource Center
- Elwyn, the Philadelphia Autism Network
- Special People in Northeast, Inc.

Contacts at these organizations generously agreed to share the invitation with their members and staff, as well as associated schools, therapists, and physicians, many of whom then shared it with

³⁸ "Museum," Pennsylvania Academy of the Fine Arts, last modified 2011, accessed November 9, 2013, <http://www.pafa.org/museum/>.

their own contacts. The invitation detailed the study's objective, a need for participant families, and some general information about the museums the families could attend. It included the dates during which the visit had to take place, as well as information about the survey responsibility and who to contact for further information. In addition to the overall distribution of the invitation, the organization ASCEND included information about the project in their monthly e-newsletters for the months of August and September. This network eventually developed into a fairly significant circulation of my research study invitation, successfully reaching desired families of children with ASD.

Between the months of June and September, six families had stepped forward with an interest in taking a museum visit. When planning their visits, the families were asked to choose the museum that most related to their child's specific interest. The families' experiences in the museum were meant to be natural and unguided. The only rule was that parents allowed their child to develop their own experience and make their own decisions.

The Instruments

An "Observation Sheet" (Appendix 2) was made available to parents during their visit to help guide them in taking notes of their child's behavior and actions. This sheet listed and defined five specific behaviors that the parents were encouraged to look for. These behaviors included:

- **Collaborations** (i.e. working and interacting with others when participating in interactives, hands-on activities, problem-solving, etc.)
- **Stimulating Conversation** (i.e. asking questions, engaging in conversation, having conversations with 3 or more exchanges, initiating conversations, etc.)

- **Taking Initiative** (i.e. making their own decisions based on where to go, what to see, what to talk about, what interactives or hands-on activities to partake in, etc.)
- **Exhibiting Leadership** (i.e. making decisions for the family, leading the group through the exhibit, acting as a teacher or a leader)
- **Exhibiting Independence** (i.e. experiencing the exhibits with little need for parental aid or support, wandering off on their own, reading labels on their own, partaking in interactives and hands-on activities on their own, little need for encouragement or other influences)

Notes from the “Observation Sheet” were key to providing the detailed information necessary for writing each case study.

After their visits, parents were required to complete a survey. Questions on the Post-Visit Survey (Appendix 3) covered inquiries which included parents’ initial expectations, their child’s behaviors, and their overall experience within the museum. Questions concerning expectations asked the parents to *circle all that apply* regarding the potential pre-conceived notions they had towards their museum visit with their child.

- A. Stressful/Problematic
- B. Overall positive, with potentially a few issues
- C. An entirely positive experience
- D. An educational experience for my child
- E. An enriching social experience for my child

Later, parents were asked to choose from the same list in regards to how they would characterize the actual experience had by their child in the museum. These responses provided a great deal of

insight into what individuals typically assume a museum experience might entail for a child with ASD versus the actual opportunities a museum can provide.

Surveying parents' observations was of greater value than observing the visits myself, due to the fact that the parents would know their child's strengths and weaknesses, as well as where they fall on the spectrum. Without in-depth knowledge of each child's history and condition, I would not have been able to sufficiently evaluate the observed behaviors myself. Having the parents observe their children allowed for an accurate depiction of what each child experienced and achieved based on the social abilities they demonstrate from day-to-day.

When the plans for this project were initially developed, the study had intended to be entirely quantitative. The goal had been to achieve a sample size of at least 40 participants and, through the data acquired from the post-visit survey alone, make conclusions based on the ratings of participants' overall experience and the frequency in which certain social behaviors were observed. Initially, the only purpose of the Observation Sheet had been to aid parents in observing and documenting their child's behaviors so that they would not forget what had taken place between their visit and the time that they actually completed the Post-Visit Survey.

Early response from potentially willing participants, however, did not get off to the start that had been initially anticipated. By the end of the designated research period, six families had succeeded in taking museum visits and completing both of the surveys. At this point, it was clear that data from such a small sample size would not be sufficient enough to develop any sort of quantitative conclusions. Instead, I looked towards the detailed notes of the parents' Observations Sheets for the main source of data, which later allowed for the composition of the case studies from which the conclusions of this study are drawn.

The reliance on a small number of participants can be justified by the amount of detailed information that was gathered from each visit. The bulk of this study now relies on qualitative data due to the significance of being able to properly analyze and address the details of each child's experience. While the quantitative approach of the Post-Visit Survey still allows for the resolve of many general questions related to the six families' experiences, the qualitative data which is represented in the case studies allows for a more accurate depiction of the families' museum visits and the social experiences had by each child.

Chapter 4

Research Findings

The following is a collection of case studies based on the data from six families who responded to the research study invitation and participated in a museum visit. The families' visits all took place between July and September of 2013. Two families visited the Pennsylvania Academy of the Fine Arts, while the other four attended the Academy of Natural Sciences. In planning their visit, none of the families expressed interest in visiting the National Constitution Center. All of the data and information detailed below is based on the observations made by the children's parents. All of the participants' names have been changed for confidentiality reasons.

Findings from Observation Sheets & Participant Parent Discussions

Case Study 1: A Passion for PAFA

April Cunningham is a 7-year-old girl diagnosed with PDD-NOS (Pervasive Developmental Disorder-Not Otherwise Specified). As described by her parents, she is a high functioning child with her major challenge being social awkwardness. April's favorite subjects are art and music. Though passionate about music, her parents are struck by her profound talent and interest in art. April's class studied the subject in school where she was taught about abstract art, which has since been a major focus of interest. At home she enjoys drawing on her own, telling her mother that her art is like, "Kandinsky. You know, he draws shapes and colors."³⁹ Constantly surrounded by boys in her classes, camps, and therapies, her parents explain that April is consistently encouraging them to draw "pretty pictures, flowers and butterflies." Having visited art museums before, she was described as always wanting to walk through the galleries

³⁹ Wassily Kandinsky, an influential Russian painter and art theorist who is credited with painting the first purely abstract art (1866-1944).

and see the “beautiful pictures.” Based on April’s obvious interests, it is no surprise that her parents chose the Pennsylvania Academy of the Fine Arts (PAFA) for their museum visit.

The Cunningham’s took their visit to PAFA on July 27, 2013. That morning, April’s mother explained that her daughter was insistent on wearing a pretty pink dress, because “women in museums wear pretty clothes, jewelry and dresses.” In the post-visit survey, April’s parents expressed that they had preconceived notions that their experience would be “Overall positive, with potentially a few issues.” However, based on their visit, the Cunningham’s rated the trip as “An entirely positive experience.”

According to April’s parents, the social behaviors exhibited by their daughter in the museum were uncharacteristic in comparison to her usual behaviors in other settings. April was incredibly comfortable in the museum, just as she is very comfortable creating her own art. The 7-year-old was focused and engaged in the art in front of her. She was very expressive and open about her thoughts and opinions towards the works, and conversation did not have to be pulled from her; it just came naturally.

According to her parents, April required some coaxing throughout the traditional art exhibits. However, once she entered the modern art exhibit, her interest peaked. Amongst the modern art, she became “the leader.” April proclaimed to her parents that she was the teacher and that they had to follow her, saying things like, “Mom, stay with me. Look at this picture. It has all kinds of things (cloth/material, paint, shapes, stripes...). Don’t go over there. We are not done looking at this.” She took initiative in deciding where to go, what to see, and how long to stay in each exhibit. She decided there was no need to spend time looking at portraits, and swiftly continued on to the next room. She took time reading labels, and surprised her parents by how much she was actually able to understand. Modern art inspired many questions and

conversation, such as “Look at all of the colors. How did they make that? How do the mosaics stick to the picture? Who is the artist? Does the artist still draw? Can we meet them?” And even inspiring her to make her own art, “Can I make modern art? Did you bring paper and crayons?”

During their visit, April’s parents asked if she’d like to some day bring her friends to the museum. She replied saying, “No. I don’t think they would know how to be quiet and look at the pictures.” The family explained that they had been to other museums where children were running around and being loud. This bothered April. She wanted to look at the art without being distracted. April is able to appreciate and understand art in a way that most children her age do not. “It changes her into a little adult,” says her mother.

Before leaving the museum, the family stopped in the museum shop, where April picked out two postcards and a magnet, all of modern art. When they got home, she immediately went to work on her own art, mimicking the piece on the magnet. Her mother explained that April very quickly used up her easel paper and was impatiently awaiting their next trip to the craft store.

The Cunningham’s were extremely happy with their museum visit, rating their overall experience a 5 out of 5. Throughout the visit, April was noted to have most often exhibited leadership and independence, as well as frequently taking initiative. The Cunningham’s stated that they would not only return to the museum or consider other museum visits based on their experience at PAFA, but would also recommend a museum visit to other parents of children with ASD.⁴⁰

Case Study 2: *Dinosaur Determination*

Desmond Quinn is a 6-year-old boy who was diagnosed with autism before his third birthday. According to his mother, his interests include science, animals, and wildlife. In order to

⁴⁰ All quotations from survey instruments available on Raw Data Disc, see Cunningham Data.

be sure that Desmond's interests were considered when deciding which museum to attend, the family took time to look over each of the museum's websites together. Desmond was said to have expressed great excitement when shown the Academy of Natural Sciences. So, on August 17, 2013, Desmond, along with his parents and two little sisters, visited the Academy. This was Desmond's first-ever museum visit.

According to the post-visit survey, the Quinn's had expected their museum visit to be "An entirely positive family experience," and according to their response after the visit, that is exactly what it was. Desmond's social behaviors in the museum were not entirely uncharacteristic in comparison to his typical behaviors in other settings. However, as for it being the 6-year-old's first time in a museum, he exhibited a great deal of initiative, leadership, and desire for independence.

Upon arriving to the Academy, Desmond became immediately insistent that they see the dinosaurs. He remembered seeing the exhibit on the Academy's website and had little to no interest in wasting time in other exhibits. Because the family did not arrive through the Academy's main entrance, there were many other exhibits separating them from Dinosaur Hall. On several occasions during the visit, Desmond was caught walking ahead, and more than once he had to be told to stay with the family, wait where he was, or come back. In any other case, this behavior would have been a wonderful example of the child exhibiting initiative and independence. However, since he is only 6, his mother kept him close and made sure he stayed with the family while they took their time in the other areas of the museum.

His patience paid off when the family finally arrived to Dinosaur Hall. Here, Desmond's social behavior dramatically increased. He asked questions about what things were and what they were doing. However, most of these conversations remained under four sentence exchanges

between himself and his mother. In The Big Dig, a hands-on exhibit where children are invited to “dig” for Cretaceous dinosaurs, Desmond collaborated with his 5-year-old sister, “digging” for fossils with the tools used by real paleontologists. According to his mother, Desmond was more likely to exhibit positive social behaviors when the museum’s galleries directly pertained to his specific interests. On the other hand, when the museum’s galleries did not pertain to Desmond’s interests, he exhibited none of the social behaviors that had been observed in other areas.

The Quinn’s were very happy with their visit, rating their overall experience a 5 out of 5. Desmond’s mother expressed that he not only took initiative throughout the visit, but also exhibited a great deal of leadership. Although Mrs. Quinn kept Desmond as close to the group as possible, he expressed an intense desire to explore and search the museum on his own. Desmond’s mother was most pleased with how stimulating the new experience was for her son. “Although he could not take in the informative information, ... he enjoyed taking in the sights,” she said. “He had much excitement.”

Based on their experience, the Quinn’s said that they would not only consider returning to the Academy, or visiting other museums, but that they would also recommend a museum visit to other parents of children with ASD. As stated by Mrs. Quinn, “I think it’s best to expose children to various settings including museums because they may just surprise you.”⁴¹

Case Study 3: *Art vs. History*

Kyle Silverstein is a 12-year-old boy diagnosed with autism who, according to his mother, loves to draw. His interest in drawing developed around the age of two or three, when he stopped communicating verbally. In order for his mother to figure out what he wanted, he would have to draw it. He began drawing things he saw on television, such as Blue’s Clues and other

⁴¹ All quotations from survey instruments available on Raw Data Disc, see Quinn Data.

characters. Today, whatever Kyle likes or takes an interest in, he draws. Kyle's other interests include computer games and outdoor sports. While attending the Center for Autism in Philadelphia, Pennsylvania, Kyle and his mother came across my research study invitation, to which Kyle exclaimed, "fine art museum, Mom!" Ms. Silverstein was incredibly enthusiastic about participating in the study and taking a museum visit. Based on Kyle's interest, she decided that their museum visit would be to the Pennsylvania Academy of the Fine Arts.

On Friday, August 23, 2013, Kyle and his mother visited PAFA with five family friends. At the time, Ms. Silverstein was under the impression that their visit would most likely be "Overall positive, with potentially a few issues." Instead, Kyle's mother described the experience after their visit as having been "An entirely positive family experience," "An educational experience for [her] child," and "An enriching social experience for [her] child."

Kyle was eager to lead his group of family and friends from the moment they walked in the door. As described by his mother, "He got the map and led the tour as to what he wanted to see and in what order." He engaged the group in conversations about his favorite works of art, and also asked questions about things he was unsure of. He engaged his mother in a conversation about a portrait, explaining how it had all of his favorite colors. Conversely, he made it clear that he did not appreciate the nude sculptures and that he did not understand why Zeus had no pants on. He expressed his like for various other works, including "Land of the Stupid" by Nancy Chunn, "Shrine of the Primaries: Karnak" by Morris Blackman, "Plastic Rainbow, Incorporating Thomas Doughty's, *Morning Among the Hills*" by Sarah Peoples, as well as "Gin Song" by Whitfield Lovell, which he was so drawn to that he reached out and touched. He also engaged his group in a conversation about the "Grumman Greenhouse" by Jordan Griska, a 45-foot-long

Cold War-era naval plane turned sculpture and unique greenhouse, which exists in PAFA's outdoor space.

Though there were plenty of areas in the museum that did not pique Kyle's interest, his mother noted that his social behaviors remained constant throughout the experience. Ms. Silverstein responded that Kyle exhibited a good deal of positive social behaviors during their museum visit. However, these positive behaviors were not seen as uncharacteristic for Kyle in comparison to his typical social behaviors of other settings.

As stated above, Kyle's mother expressed that their museum visit had been a very positive experience for her son, both educationally and socially. She claimed that Kyle often exhibited all of the following social behaviors in the museum: collaborations, stimulating conversation, taking initiative, exhibiting leadership, and exhibiting independence. However, when asked to rate her child's overall experience on a scale of 1-5, with 1 being a negative experience and 5 being most positive, Ms. Silverstein responded with a 3. This lower rating was in part due to a bit of confusion that occurred on behalf of the museum's collection and what Kyle had, in fact, been hoping to see on his visit.

According to his mother, Kyle had been really excited about seeing PAFA's Civil War gallery. Of course, since PAFA is an art museum, they do not actually have a Civil War gallery. During their visit, Kyle became so anxious to see a Civil War gallery that he decided to go looking for it, and asked the group to come along. After finding "no real Civil War items; military items, uniforms, flags, and things of that nature, he got bored," said his mother. Because of Kyle's sudden interest in history, which his mother had not previously expressed, the family was offered the chance to take an additional museum visit to the National Constitution Center, to which they never responded.

Ms. Silverstein had complained about many areas of PAFA being closed off to the public. Based on their visit, she said that she and Kyle would probably not return to PAFA, but would consider visiting other museums. She also said that she would recommend a museum visit to other parents of children with ASD because such an experience is likely to open a child up.⁴²

Case Study 4: *One Step Ahead*

Ryne Cullen is a 9-year-old boy diagnosed with Asperger Syndrome. His specific interests include science, geography, and history. His bookshelves at home consist mainly of math and astronomy, which coincide with the numerous equations and constellations found scribbled on his white board. He enjoys home experiment kits for kids that teach about electricity, magnetism, and chemistry. At the same time, he is enticed by world maps and has several on his bedroom wall outlining both where he has been and where he someday intends to go. According to his father, Ryne takes pleasure in learning and enjoys playing the role of the teacher and sharing knowledge with others. That being said, social interaction is not his strong suit.

Ryne and his father work with a school psychologist and the staff of Elwyn, a human services organization, serving individuals with disabilities and diverse challenges, to manage Ryne's social behaviors and help him handle interactivity. Some of the specific areas where Ryne is noted as needing work include compromising (learning to work with others), flexibility (coping with change), empathy (being polite and considering other people's feelings), and trying new things (not avoiding activities or individuals just because they are new). When feeling uncomfortable about a new situation or experience, Ryne was known to give an excuse of not liking the experience in order to avoid it. This concerned Ryne's father, as Ryne was likely to

⁴² All quotations from survey instruments available on Raw Data Disc, see Silverstein Data.

miss out on many things in life if this behavior was to continue. However, after the family's visit to the museum, Mr. Cullen expressed that a small breakthrough had been made here.

Based on Ryne's interests, Mr. Cullen chose to take his son and 6-year-old daughter to the Academy of Natural Sciences. They took their visit on Saturday, August 24, 2013. Prior to the visit, Ryne's father believed the trip would be "An educational experience for [his] child." After the visit, he responded that the trip had been "An entirely positive family experience."⁴³

Throughout the family's visit, Ryne took charge determining where the group would go and what they would see. Mr. Cullen encouraged this behavior until Ryne's pace in the exhibits began exceeding that of the group's. According to his father, "the only bothersome aspect of this was [that] when he was done looking at something, we were all supposed to be done looking." Ryne would repeatedly walk ahead of the group, read the labels, and return drawing attention to the upcoming exhibit and explaining what he had learned. According to Ryne's father, he eventually put an end to this, telling Ryne that he had to be patient and wait until everyone was ready to move ahead and continue to the next exhibit.

Ryne initiated several conversations, primarily with his father, almost non-stop throughout the visit. He enjoyed reading the labels, and then restating to the group where the pieces were found and what makes them unique. This behavior is evidence of Ryne's passion for the playing the role of teacher. "Sometimes his explanations were blunt, but accurate," said his father.

Throughout their visit, Ryne primarily interacted with his sister and Mr. Cullen. He collaborated with his sister while mock digging in The Big Dig, and took initiative showing her how to excavate the bones when she was unsure of what to do. While playing, Ryne shared his thoughts about where the bones had come from and where they might belong on the dinosaur.

⁴³ All quotations from survey instruments available on Raw Data Disc, see Cullen Data.

Mr. Cullen expressed that it was great seeing Ryne be helpful and supportive of his sister, when he can sometimes be short-tempered and cross.

Together, the family read all of the panels along North American Hall. Ryne enjoyed discussing the animals and their behaviors, and having the opportunity to see creatures that he knowingly would not have seen in his own backyard. Ryne participated in an interactive session with a museum staff member in the exhibit *Glow: Living Lights* despite the fact that a significant number of visitors also partook in the presentation. Ryne's father expressed that Ryne was more likely to exhibit positive social behaviors when the exhibit directly pertained to his specific interests, rather than when the exhibit did not. Due to Ryne's interest in science, it makes sense that *Glow*, an exhibit on bioluminescence in living things, would attract his attention and bring out positive social behaviors. However, aside from this example, Ryne's father responded that both the kind and frequency of social behaviors exhibited by his child in the museum were fairly typical in relation to other settings. Overall, the experience encouraged Ryne to partake in many stimulating conversations and exhibit a great deal of independence in the museum. In addition, he frequently exhibited both initiative and leadership throughout the visit.

Ryne's father rated his son's overall experience in the museum to be a 4 out of 5. "My son really enjoys academic topics," he said. "A museum is a natural for him." Mr. Cullen said that he would either return to the Academy of Natural Sciences or consider visiting other museums based on this particular trip, and that he would recommend a museum visit to other parents of children with ASD. "If a child enjoys science and history, a museum would likely be a good place to spend the afternoon," he said. "Especially if there are opportunities for interactivity."⁴⁴

⁴⁴ "About Elwyn," Elwyn, accessed November 9, 2013, <http://www.elwyn.org/about/>.

Case Study 5: *Science Sincerity*

Julian Davis is a 10-year-old boy diagnosed with Asperger Syndrome. His specific interests include chess, mini-golf, video games, piano, and violin, but as with most kids with Asperger's, he believes himself an expert in all subjects. His family often calls him "professor," because (like Ryne) he is always in the teaching mode. According to his mother, Julian is exceptionally bright and curious, and absolutely loves to learn.

Julian's mother decided to take her son to the Academy of Natural Sciences on September 5, 2013. This decision was made based on the fact that Julian had already experienced the Philadelphia Museum of Art and the National Constitution Center, and his mother was interested in gauging his interest in the natural sciences. Before the visit, she expected that the experience would be "Overall positive, with potentially a few issues" and "An educational experience for [her] child." Later, based on the duo's experience, she assessed that her expectations had been spot-on. According to Ms. Davis, the overall experience had consisted of great learning opportunities, but also moments of great anxiety for her son.

When the two arrived at the museum, Julian was insistent on consulting the map before entering any exhibits. He took a fair amount of time trying to decide where to start, but eventually gave up and threw the map to his mother. He walked into the first gallery he saw, which happened to be *Glow: Living Lights*. According to his mother, Julian stayed for approximately 10 seconds before he turned around and headed back towards the exit. The exhibit was very dark and he appeared scared. According to Julian, the topic did not interest him.

Next, Julian and his mother spent much time in Dinosaur Hall, where they observed the displays, dropped into the Paleo Lab, and took part in The Big Dig. At one point when Julian was enjoying reading labels and observing artifacts on his own, a museum guide approached him

and began providing information about the T-Rex tooth that was on display. This guide had a heavy accent. Not only could Julian not understand the guide, but he also could not understand why the guide was repeating exactly what was stated on the object's label. As explained by his mother, unless the guide had provided additional information about the tooth, which he did not, Julian had no interest in having this conversation. Julian was fairly rude to this guide.

Julian's attitude changed in the Paleo Lab, where he took the lead in conversation and asked many questions regarding the paleontologists' work. The workers in the lab were busy uncovering the fossil remains of a Hadrosaur found in Wyoming. Julian asked the paleontologists many time-related questions, such as when the creature lived, when it was found, how long it takes to uncover a fossil, and how long it takes to display it in the museum. According to his mother, Julian is very interested in how time lapses. As she says, he is very "chrono-aware." Julian even repeated and clarified each of the workers' answers after they were provided. He was pleasant and polite, and appeared genuinely interested in the work being done. Later on, in The Big Dig, Julian tried his own hand at paleontology. However, the drudgery seemed to spoil the feat. "This is going to take too damn long," he said as he chiseled away at the rock containing the specimen. His mother later asked how long he thought it took for the bone to become embedded in the rock. "Too damn long," he repeated.

The pair moved on to the dioramas, which Julian's mother found very interesting. However, Julian hurried her through this area determined to find an exhibit entitled, "Science at the Academy." When his mother pointed out that the two had already walked through this part, the scene was anticlimactic. Even so, Julian took the time to stop and read every panel in the exhibit.

Julian was fairly excited about Outside In, a hands-on children's exhibit and indoor nature center that features numerous museum specimens, including lizards, rabbits, and cockroaches. He played with a whale puppet, pretending to be a ventriloquist, and then took time checking out the live turtles. However, the other animals were of little interest to him. Instead, Julian spent a great deal of time looking at slides through a microscope, of which he later exclaimed, "That was amazing!" The slides featured an up-close look at the wings of a butterfly. While the pictures themselves were interesting, it was the actual microscope that really held Julian's interest. He was fascinated by the tool's purpose and his ability to see things one could not see with the naked eye. According to his mother, the microscope was Julian's favorite part.

In the post-visit survey, Ms. Davis rated her son's experience in the museum to have been a 4 out of 5. Throughout the visit, she noted him being either completely engaged, or not at all. Julian often displayed frustration when feeling obligated to read and interpret information, and at times he displayed a great deal of anxiety. When confronted with the "Live from the Mesozoic" green screen interactive, he confessed, "I am freaking out. These scare me."⁴⁵ However, when asked about his experience, he told his mother that he had enjoyed himself.

Ms. Davis expressed that her son's overall social behaviors exhibited in the museum were not uncharacteristic in comparison to other social settings. What did surprise her, however, was how engaged and social he was in areas of the museum that did not directly pertain to his obvious interests. She said he actually exhibited more social behaviors in these areas of the museum than in areas that she thought he would have liked. Throughout the visit, Julian was often observed taking initiative and exhibiting independence. According to his mother, he also frequently exhibited leadership during his museum visit.

⁴⁵ "Live from the Mesozoic" is an interactive component of Dinosaur Hall where visitors are invited to enter a green screen area that projects their image onto a background image of dinosaurs roaming a forested environment.

In the end, Ms. Davis expressed that she would probably not return to the Academy of Natural Sciences with Julian because she felt it did not challenge him. However, she would consider visiting other museums with her son based on this experience. She also said that she would recommend a museum visit to other parents of children with ASD based on this experience. She enjoyed the amount of sensory opportunities offered at the Academy, but was unhappy with the inconsistent settings of exhibits being too loud, too bright, too dark, etc., which caused anxiety in her son.⁴⁶

Case Study 6: *Surprisingly Social*

Rebecca Sheeley is an 11-year-old girl diagnosed with autism. According to her mother, Rebecca's specific interests include animals and dinosaurs. Ms. Sheeley homeschools her daughter and incorporates museum field trips into her education on a fairly regular basis. The two discovered the research study invitation while attending the Center for Autism Research at The Children's Hospital of Philadelphia. Based on her daughter's specific interests, Ms. Sheeley decided to take Rebecca to the Academy of Natural Sciences.

The Sheeleys took their visit on September 5, 2013. Also along for the visit was Rebecca's 12-year-old older brother. Prior to their visit, Ms. Sheeley expected that the experience would likely be "Overall positive, with potentially a few issues" and "An educational experience for [her] child." After the visit took place, she concluded that the experience had been both of these things, in addition to "An enriching social experience for [her] child."

As soon as the group arrived, Rebecca took the map and decided they would start at the Live Animals Center. Upon seeing the red fox, Rebecca recalled her cousin's love for the

⁴⁶ All quotations from survey instruments available on Raw Data Disc, see Davis Data.

creatures and exclaimed, “If Veronica were here she’d freak out!” Rebecca continued consulting the map and deciding where the group would go throughout the duration of the visit.

Rebecca was consistently social with both her mother and brother throughout the experience. In Dinosaur Hall, she and her brother impressed their mother by being able to identify every dinosaur on display. As described by Ms. Sheeley, the siblings are both very fond of dinosaurs and have many books on them at home. They also enjoy playing a Nintendo game called “Fossil Fighters.” The game consists of excavating dinosaur fossils, and then battling with them once they are unearthed. In response to her mother’s surprise, Rebecca exclaimed, “See, video games can be educational!” At the “Live from the Mesozoic” green screen interactive, Rebecca jumped right in and encouraged her brother to join. Because of her love for dinosaurs, she was not fearful or shy.

While observing the dioramas, some major social interactions included joking about the moose’s nose and eagerly encouraging her family to come see the polar bear. Rebecca became engaged with museum staff member while comparing the skulls of a grizzly, polar, and black bear. The staff member pointed out the size of the skulls, as well as the different shapes of the bears’ teeth and how this gives some insights into their diets. Rebecca showed a lot of interest in this area and was very engaged in the conversation.

Rebecca communicated with staff members several times throughout the visit. During a presentation in Dinosaur Hall, she asked questions about a camouflaged snake, and even answered a question about a bearded dragon. Rebecca’s mother was very impressed with her manners and behaviors in the museum. Rebecca was better behaved in the museum as it pertains to behaviors like keeping her voice down and not running, than she would have been in other settings. She “did well modulating appropriate voice volume, unlike other teens,” said Ms.

Sheeley. Her mother considered Rebecca's social behaviors in the museum to be positive and uncharacteristic in comparison to her usual behaviors in other settings.

Rebecca excelled in socializing with her mother, brother, and museum staff throughout the visit. However, when her mother pointed out that an old acquaintance from swim class was also at the museum, Rebecca had no desire to make any sort of connection. The family was spotted while the group observed a talk about iguanas in Dinosaur Hall. Ms. Sheeley was surprised to see the family since they had not seen each other in years. She pointed them out to Rebecca, saying, "Hey, Anthony and his family are here, from swimming. Do you want to go over and see him?" "Nope," she responded, and retreated to the animatronic dinosaur, which she really enjoyed.

They ran into the family again in Outside In, where the two were together for about 10 minutes, but displayed very little interaction. According to Ms. Sheeley, "Rebecca and Anthony were very content to do their own thing." Anthony's level of social abilities were apparently similar to Rebecca's, if not worse, in that they both struggled with interaction. When the two participated in swim lessons, their interaction was very minimal then as well. Rebecca's mother was still surprised, however, that Rebecca could have no problem carrying a conversation with an adult, yet would not even say "hello" to a child she took swim with for a couple of years.

Ms. Sheeley rated Rebecca's overall experience at the Academy of Natural Sciences to be a 5 out of 5. She was impressed with her daughter's behaviors and her ability to act interested and engaged even when an exhibit did not specifically relate to her interests. Rebecca let her mother know when she was ready to move on, and she was very polite and patient about it. Ms. Sheeley expressed that her daughter often took initiative, and exhibited both leadership and independence in the museum. Not only did Ms. Sheeley claim that she would return to the

museum or visit another museum with Rebecca based on this particular experience, but she also said that she would suggest a museum visit to other parents of children with ASD.⁴⁷

⁴⁷ All quotations from survey instruments available on Raw Data Disc, see Sheeley Data.

Chapter 5

Conclusions

Based on the data acquired from this study, it is evident that there are many social opportunities, as well as other opportunities, for children with ASD in the museum. It is additionally evident that the museum environment can provide a positive experience for children with autism spectrum disorder. The families' average rating for their overall experience in the museum received a 4.3 out of 5, with 5 representing a most positive experience. Although most of the families had expected their museum experience to be "overall positive, with potentially a few issues," the majority left the museum feeling that their visit had, in fact, been "an entirely positive family experience."

In regards to the five specific behaviors that parents were asked to observe of their children, Exhibiting Leadership (4.5), Taking Initiative (4.7), and Exhibiting Independence (5) received the highest scores on a rating scale of 1-5, with 5 indicating that the behavior had been often exhibited in the museum. Exhibiting Independence received a perfect 5 out of 5, being the social behavior that parents most often witnessed from the children. The only individual who had expressed a lack of opportunity for independence in the museum had been Mrs. Quinn in regards to her 6-year-old son, Desmond. However, Mrs. Quinn made it known that Desmond had desperately attempted to exhibit independence in the museum, but due to his age was required by his parents to stay with the group and not wander off on his own. Desmond's mother had given Exhibiting Independence a rating of N/A on the Post-Visit Survey, meaning that there had been no opportunities for this behavior in the museum. Since Desmond had actually exhibited a great desire for independence during his visit, his rating for Exhibiting Independence was not counted in the behavior's average score.

Collaborations (3) and Stimulating Conversation (3.2) received the lowest scores out the social behaviors exhibited by the participants in the museum. However, this may be explained by a number of factors. Collaborations may be only likely to occur in museums that openly allow for such activities to take place. For instance, the Cunninghams' expressed that there were no opportunities for April to take part in collaborations during their trip to PAFA. This is most likely due to the lack of interactive and hands-on activities available in the exhibits. However, the Silversteins, who had also visited PAFA, expressed that Kyle had often taken part in collaborations throughout their visit. This may be due to the fact that the Silverstein's had visited with a very large group. The group dynamic may have allowed Kyle to partake in more collaboration when it came to making decisions or expressing opinions about the exhibits and the art. The fact that April had only visited with her parents might also explain why her experience lacked opportunity for collaboration, or that her parents did not actually recognize her interactions with them as collaboration.

Although most parents reported that the social behaviors exhibited by their child in the museum were overall not uncharacteristic in comparison to their typical behaviors in other social settings, details from parents' observations of the children suggest otherwise. Many parents expressed that they had been both impressed and surprised by their child's behaviors in the museum. It is, therefore, curious as to why most categorized their child's behaviors to be not uncharacteristic when responding to the post-visit survey. When confronted with the question, parents may not have readily recognized their child's social achievements in the museum, and may have rather considered them to be small acts of little significance. However, the data and case studies indicate that each child did exhibit some, if not many, forms of uncharacteristic, but

positive, social behavior during their visit. This suggests that the museum is a suitable place for children with ASD to practice and develop their social skills.

It should be noted that information regarding crowds and the number of visitors in attendance on the date of each family's visit was not collected. The surveys, additionally, did not inquire into sensory experiences or components within the exhibits that may have been a cause of concern. However, most families took note if their child experienced any issues or anxiety in regards to such situations. These experiences were then depicted in the case studies.

Overall, the children were observed exhibiting social behaviors more often when an exhibit or collection directly related to their specific interests, and less often when the exhibits were of an unrelated subject. However, perhaps more significant is the frequency in which they did exhibit social behaviors in these areas of unrelated interest. Kyle Silverstein, Julian Davis, and Rebecca Sheeley were all noted to have exhibited an equal amount, if not more, social behaviors in areas of the museum that did not relate to their specific areas of interest. In particular, Julian's mother expressed surprise when her son seemed to be even more social in areas of the museum that she assumed would be of no interest to him.

Perhaps also unexpected was how social Julian was overall, considering that his specific interests, which include chess, videogames, piano, and the violin, do not coincide with the subjects exhibited at The Academy of Natural Sciences. This suggests that even though most children are more likely to be social when addressing a specific topic of interest in the museum, there are also opportunities for social behaviors to occur in areas of the museum that are unrelated to the child's specific interest. Based on the information gathered by parent observations in this study, the areas of the museum that evoke social behaviors in a child with ASD may, in fact, be areas that were not initially expected to evoke much of anything. This may

be due to the commonly shared characteristic that children with ASD tend to be very receptive to new information and will consider themselves the expert of many subjects.

Out of the six participating families, one responded to having visited a museum 7-10 times in the past year, two participants had taken 4-6 visits in the past year, and the remaining three participants had visited a museum between 1-3 times in the past year. Only Mrs. Quinn expressed that this had been her son's very first visit to a museum, which makes sense based on his young age. Out of all of the families, the Cunningham's were the only ones who were museum members. Based on this information, some of the children's positive behaviors in the museum may be explained by the fact that for many, this was not their first museum visit. It is possible that due to previous experiences, they were already comfortable in a museum environment and not afraid to express and exhibit social behaviors. However, even Ms. Sheeley, who admitted to taking Rebecca on many museum trips as part of her homeschooling program, expressed surprise and delight over the positive behaviors exhibited by her daughter on this particular visit. Considering that the Sheeleys had taken more museum visits than any other participating family in the past year, it could be assumed that each of the children's behaviors were essentially a result of that specific experience and not the product of past museum experience.

When asked whether or not they would consider returning or visiting other museums with their child based on this visit, 5 out of 6 parents responded that they would. Ms. Davis, the only parent who had responded negatively, said that although Julian enjoyed their visit, she had felt that the museum itself had not been challenging enough for her son. She later responded that the two would probably not return to the Academy of Natural Sciences, but would consider visiting other museums based on their experience. All parents also expressed that they would recommend

a museum visit to other parents of children with ASD based on this particular experience. Based on these responses, it is safe to say that the participant families and their children with ASD found the museum experience to be a positive one. Not only are these families likely to take additional museum visits because of their experience, but are also likely to encourage similar families to take museum visits, which will hopefully increase awareness of the potential museum benefits for children with ASD within the autism community.

Museums and similar institutions, perhaps unintentionally, are among the most ideal and beneficial places for children on the spectrum. Museum visits not only provide educational benefits, but also possess potential social opportunities for children with ASD. Since children on the spectrum are both likely to obsess and consider themselves experts over particular subjects, encouraging such interests may lead to the development and practice of valuable social skills. The simple fact that museums generally tend to be subject-based makes them the perfect setting for encouraging social behaviors in a child with related interests. Since museums are considered some of the most scholarly and well-trusted institutions in the country, any child that considers themselves an expert in all subjects or enjoys playing the role of teacher, as many children on the spectrum do, should enjoy the museum experience and the vast learning opportunities they have to offer.

Chapter 6 Applicability to the Field & Implications for Further Research

As of 2013, autism is known to affect 1 in 88 American children. It is the fastest growing serious developmental disability in the United States, and there is no medical detection or cure for it. As the prevalence of autism continues to increase at an astonishing rate, the disorder surprisingly receives less than 5% of the research funding that is received by many less prevalent childhood diseases. In 2012, the National Institutes of Health (NIH) granted \$169 million towards the funding for autism research. This number represented only 0.55% of the NIH total annual budget.⁴⁸ By serving the autism community, museums would not only be benefitting themselves by diversifying their audiences, but would also benefit a sector of the population that is generally otherwise overlooked. Based on the data provided, museums have both the potential and the opportunity to serve the autism community.

Subject-based institutions should consider marketing to families of children on the spectrum by highlighting their collections and expertise in distinct subject matters that might be of interest to such children. Since museums offer unique social and educational opportunities for children on the spectrum, they should also consider providing interest-related programming. Like the programming at the New York Transit Museum, focusing on individuals' specific interests may promote social interaction amongst participants who share the same interests and provide learning opportunities that the participants might not otherwise receive in a classroom setting.

This data should act as the foundation for additional studies to be further researched in the future. It is first suggested that this particular study be repeated but with a greater number of participants and a wider variety of institutions. Such an investigation would provide a more

⁴⁸ "Facts About Autism," Autism Speaks, last modified 2013, accessed November 4, 2013, <http://www.autismspeaks.org/what-autism/facts-about-autism>.

accurate representation of the quantitative data desired, such as the rating of participants' overall experience and the frequency in which children exhibited specific social behaviors.

This research may also lead to other related studies such as an evaluation of already existing social programs for children with ASD like that of the NYT Museum, an investigation of potential sibling interaction in the museum, and even an examination of children's reactions to other subject-specific institutions (i.e. examining how a child with a specific interest in art might react on a visit to a science museum). A study of participants' social behaviors and experiences in the museum without the presence of family members, perhaps amongst classmates on a school trip, may also be beneficial. A more demanding and time-consuming study could ask if regular participation in museum visits affect a child's social behavior outside of the museum or over the course of their lifetime.

The bottom line is that the investigation of the potential opportunities in museums for children with autism spectrum disorder is just getting started and there is much more research to be done. In order for the museum field to successfully serve this audience, we must continue to study the potential benefits that the museum can provide to this group. Through further research we must strive for a greater, more purposeful, relationship between the museum and the autism community.

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Appendix 1 Research Invitation

Dear Families & Friends,

My name is Kara Gaffken, and I am a graduate student of Museum Education at the University of the Arts in Philadelphia, PA. I am currently working on my Master's thesis and I am looking for your help!



P a f A
PENNSYLVANIA ACADEMY OF THE FINE ARTS

The purpose of this study is to demonstrate that children with Autism Spectrum Disorder can both practice and gain beneficial social skills by participating in museum visits.



THE ACADEMY
OF NATURAL SCIENCES
of DREXEL UNIVERSITY

Is your child with autism between the ages of 6-12?
Does he or she have a specific interest in
art, science, or history?

Then come enjoy a FREE family day
at the museum this summer!
Choose from the Pennsylvania Academy of the Fine
Arts, the National Constitution Center, or
The Academy of Natural Sciences of Drexel University.



NATIONAL CONSTITUTION CENTER

Casually observe your child's social
behaviors and choices during your museum
visit. After your visit, you'll be asked to fill
out a short survey about the experience.

Tickets cover your child, yourself, and one other guest.
This opportunity is only available through September,
so SIGN-UP NOW!

You can contact me at kgaffken@uarts.edu

See you at the museum!

Appendix 2

Observation Sheet

Observation Sheet # _____
Survey Date _____

Observations of Your Child's Museum Experience

During your museum visit, take time to note any outstanding observations you make of your child's choices and behaviors, including the following. These notes will help you respond to the Post-Visit Survey later on.

Make note of any time your child exhibits any of the following social behaviors/skills:

- a) **Collaborations** (i.e. working and interacting with others when participating in interactives, hands-on activities, problem solving, etc.)

- b) **Stimulating Conversation** (i.e. asking questions, engaging in conversation, having conversations with 3 or more exchanges, initiating conversations, etc.)

- c) **Taking Initiative** (i.e. making their own decisions based on where to go, what to see, what to talk about, what interactives or hands-on activities to partake in, etc.)

- d) **Exhibiting Leadership** (i.e. making decisions for the family, leading the group through the exhibit, acting as a teacher or a leader)

- e) **Exhibiting Independence** (i.e. experiencing the exhibits with little need for parental aid or support, wandering off on their own, reading labels on their own, partaking in interactives and hands-on activities on their own, little need for encouragement or other influences)

- f) **Other Observations/Comments**

Appendix 3

Post-Visit Survey

Survey # _____
Survey Date _____

Post-Visit Survey of Your Child's Museum Experience

Please take a few minutes to share your observations of your child's behaviors and experience within the museum.

1. **How would you rate your child's overall experience in the museum, on a scale of 1-5 with 1 being a negative experience and 5 being most positive?**
1 2 3 4 5
2. **Before I visited the museum, I had preconceived notions that a museum visit with my child would be (circle all that apply):**
A. Stressful/Problematic B. Overall positive, with potentially a few issues
C. An entirely positive experience D. An educational experience for my child
E. An enriching social experience for my child
F. Other, explain: _____
3. **Based on our visit, I would consider the museum experience with my child to have been (circle all that apply):**
A. Stressful/Problematic B. Overall positive, with potentially a few issues
C. An entirely positive family experience D. An educational experience for my child
E. An enriching social experience for my child
F. Other, explain: _____
4. **Rate the frequency in which you observed your child exhibiting the following social behaviors/skills within the museum, on a scale of 1-5 with 1 being never exhibited and 5 being often exhibited. If there were no opportunities for such behaviors, answer N/A.**
A. **Collaborations** (i.e. working and interacting with others when participating in interactives, hands-on activities, problem-solving, etc.) _____
B. **Stimulating Conversation** (i.e. asking questions, engaging in conversation, having conversations with 3 or more exchanges, initiating conversations, etc.) _____
C. **Taking Initiative** (i.e. making their own decisions based on where to go, what to see, what to talk about, what interactives or hands-on activities to partake in, etc.) _____
D. **Exhibiting Leadership** (i.e. making decisions for the family, leading the group through the exhibit, acting as a teacher or a leader) _____
E. **Exhibiting Independence** (i.e. experiencing the exhibits with little need for parental aid or support, wandering off on their own, reading labels on their own, partaking in interactives and hands-on activities on their own, little need for encouragement or other influences) _____
F. **Other** _____
5. **Would you consider the social behavior exhibited by your child in the museum to be uncharacteristic in comparison to their social behavior in other settings?**
Please circle: YES or NO
a. **If yes, please explain** _____

6. **What is your child's current specific interest(s), if any?** _____
7. **On scale of 1 to 5, with 1 being never exhibited and 5 being often exhibited, how often did your child exhibit positive social behaviors when the museum's gallery or collection pertained to the topic of your child's specific interest?**
1 2 3 4 5
8. **On a scale of 1 to 5, with 1 being never exhibited and 5 being often exhibited, how often did your child exhibit social behaviors in other parts of the museum when the galleries and collection did not directly pertain to the topic of your child's specific interest?**
1 2 3 4 5

9. **Is this your child's first visit to a museum? Please circle:** YES or NO
 a. **If no, what other types of museums has your child attended prior to this visit?** _____

10. **Would you return to the museum or consider visiting other museums with your child based on this visit?**
Please circle: YES or NO
 a. **Please explain your answer.** _____

11. **Would you recommend a museum visit to other parents with children with ASD? Please circle:** YES or NO
 a. **Please explain your answer.** _____

12. **Please leave any other comments or insight you'd like to share about your museum visit with your child here:**

-
13. **What is the age of your child?** _____ 14. **Zip Code** _____
15. **What is your child's gender?** A. Male B. Female
16. **What type of classroom setting does your child partake in? Please circle:**
 A. General education classes B. Special education classes
 C. A mix of both general and special education classes D. My child attends a special needs school
17. **Are you and/or your family museum members? Please circle:** YES or NO
 a. If yes, at what museum(s)? _____
18. **How many times in the past year have you and your family visited a museum? Please circle:**
 A. 1-3 B. 4-6 C. 7-9 D. 10+

**Thank you for taking the time to complete this survey. You're feedback is greatly appreciated.
 Please return the completed survey to kgaffken@uarts.edu**

Kara Gaffken

Appendix 4

Post-Visit Survey Findings

The following is an assemblage of the data that derives from the post-visit surveys required of the families who participated in a museum visit. Each question from the survey is restated below, followed by the responses given or an average of those responses.

Q1. How would you rate your child's overall experience in the museum, *on a scale of 1-5 with 1 being a negative experience and 5 being most positive?*

Out of the 6 families that took museum visits, the average rating for their overall experience was 4.3 out of 5.

Q2. Before I visited the museum, I had preconceived notions that a museum visit with my child would be *(circle all that apply)*:

“Overall positive, with potentially a few issues,” was the most common response with 4 out of 6 parents having chosen it.

2 out of 6 parents chose “An entirely positive experience”.

2 out of 6 parents also chose “An educational experience for my child”.

One parent chose “Other” and stated, “that he would get bored and want to leave.”

Q3. Based on our visit, I would consider the museum experience with my child to have been *(circle all that apply)*:

“An entirely positive family experience” was the most frequent response having been chosen by 4 out of 6 parents.

3 out of 6 parents chose “An educational experience for my child”.

2 out of 6 parents chose “Overall positive, with potentially a few issues”.

2 out of 6 parents chose “An enriching social experience for my child”.

Q4. Rate the frequency in which you observed your child exhibiting the following social behaviors/skills within the museum, on a scale of 1-5 with 1 being never exhibited and 5 being often exhibited. If there were no opportunities for such behaviors, answer N/A.

Out of the 5 families who took a museum visit and expressed that there was an opportunity for **Collaborations** (i.e. working and interacting with others when participating in interactives, hands-on activities, problem-solving, etc.) in the museum, the average frequency in which parents said to have observed their child participating in such behaviors was rated a 3.

Out of the 6 families who took a museum visit, all expressed that there was an opportunity for **Stimulating Conversation** (i.e. asking questions, engaging in conversation, having conversations with 3 or more exchanges, initiating conversations, etc.) and rated the average frequency in which they observed their child participating in such behaviors a 3.2.

Out of the 6 families who took a museum visit, all expressed that there was an opportunity for **Taking Initiative** (i.e. making their own decisions based on where to go, what to see, what to talk about, what interactives or hands-on activities to partake in, etc.) and rated the average frequency in which they observed their child participating in such behaviors a 4.7.

Out of the 6 families who took a museum visit, all expressed that there was an opportunity for **Exhibiting Leadership** (i.e. making decisions for the family, leading the group through the exhibit, acting as a teacher or a leader) and rated the average frequency in which they

observed their child participating in such behaviors a 4.5. One parent specifically explained, “He got the map and led the tour as to what he wanted to see and in what order.”

Out of the 6 families who took a museum visit, 5 expressed that there was an opportunity for **Exhibiting Independence** (i.e. experiencing the exhibits with little need for parental aid or support, wandering off on their own, reading labels on their own, partaking in interactives and hands-on activities on their own, little need for encouragement or other influences) and rated the average frequency in which they observed their child participating in this behavior a 5. The one parent who responded to the rating with N/A later explained that the child “wanted to (exhibit independence) but I insisted we stay together as a group” due to the fact that the child was only 6 years old.

An additional response from Ms. Silverstein read, “He got the map and led the tour as to what he wanted to see and in what order.”

Q5. Would you consider the social behavior exhibited by your child in the museum to be uncharacteristic in comparison to their social behavior in other settings? If yes, please explain:

Out of the 6 families who took museum visits, only 2 responded saying that they would consider the social behaviors exhibited by their child in the museum to be uncharacteristic in comparison to their social behaviors exhibited in other environments, expressing that they observed an increase and/or improvement in the social behaviors of their child in the museum. These behaviors came specifically from April Cunningham and Rebecca Sheeley.

Mrs. Cunningham explained that April “becomes very comfortable in art museums or doing art projects... She has a focus and pays attention to what she sees in art galleries and

renders opinions on what she likes and doesn't like. We do not have to "pull" conversation from her in a museum. It happens naturally. She is more expressive when looking at art. 'Mom, that is beautiful... I love the colors... Can I meet the artist?' I don't have the same exchange when asking her about a story she read for homework."

Ms. Sheeley explained that Rebecca "was actually slightly better at the museum as it pertains to silly behavior, following 'museum rules' like voice volume, no running, etc."

It may be interesting to note that these 2 children were the only 2 girls out of the 6 children who took visits with their families.

Q6. What is your child's current specific interest(s), if any?

April Cunningham - Art, music, theatre (going to shows), farm animals

Desmond Quinn - Animals, wildlife

Kyle Silverstein - Drawing, computers, outdoor sports

Ryne Cullen - Science, Geography, History, LEGOs, MineCraft, BrainPop tutorials

Julian Davis - Chess, videogames, piano, violin, being a teacher

Rebecca Sheeley - Animals, dinosaurs

Q7. On scale of 1 to 5, with 1 being never exhibited and 5 being often exhibited, how often did your child exhibit positive social behaviors when the museum's gallery or collection pertained to the topic of your child's specific interest?

Out of the 6 families who took museum visits, parents responded that their child exhibited positive social behaviors in the museum when the gallery or collection pertained to the topic of their child's specific interest(s) with a 4.2.

Q8. On a scale of 1 to 5, with 1 being never exhibited and 5 being often exhibited, how often did your child exhibit social behaviors in other parts of the museum when the galleries and collection did not directly pertain to the topic of your child's specific interest?

Out of the 6 families who took museum visits, parents responded that their child exhibited positive social behaviors in the museum when the gallery or collection did not pertain to the topic of their child's specific interest(s) with a 3.2.

Q9. Is this your child's first visit to a museum?

5 out of 6 parents said that this was not their child's first trip to a museum.

a. If no, what other types of museums has your child attended prior to this visit?

April Cunningham - Brandywine River Museum, Please Touch Museum (Philadelphia), Delaware Children's Museum, Railroad Museum of Pennsylvania, Longwood Gardens

Kyle Silverstein - The Franklin Institute and The Academy of Natural Sciences

Ryne Cullen - The Franklin Institute, Brandywine River Museum, & Delaware Museum of Natural History

Julian Davis - Philadelphia Art Museum, Smithsonian (D.C.), National Constitution Center, The Franklin Institute, Carnegie-Mellon Museum

Rebecca Sheeley - We go to many science museums, zoos, and aquariums. Don't really go to art museums. She thinks they are boring

Q10. Would you return to the museum or consider visiting other museums with your child based on this visit?

5 out of 6 parents responded that they would consider returning or visiting other museums with their child based on this visit. The one parent that responded negatively said that, “We liked it [the Academy of Natural Sciences], but I don't think it was challenging enough for him.” She later responded that they would consider trips to other museums, but would probably not return to the Academy of Natural Sciences.

Q10A. Please explain your answer:

Cunningham - Yes. We plan to take her to the Barnes exhibit (I want to see her reaction to Picasso), Philadelphia Museum of Art, Delaware Museum of Art, and Delaware History Museum. I also want to show her Monet paintings.

Quinn - He was very excited due to that it was in his interest and a new stimulating experience.

Silverstein - At PAFA, a lot of areas were closed off. Not much to see. Probably wouldn't go back to PAFA, but would go to others.

Cullen - My son really enjoys academic topics. A museum is a natural fit for him.

Davis - We liked it, but I don't think it was challenging enough for him. I think the exhibits were a little young for his acumen. He would probably love other museums.

Sheeley - I homeschool Rebecca and she learns most cooperatively in hands on visual experiences. We take many field trips, especially to museums (love DaVinci Science Center!)

Q11. Would you recommend a museum visit to other parents of children with ASD?

All parents responded that they would recommend a museum visit to other parents of children with ASD.

Q11A. Please explain your answer:

Cunningham - Children on the spectrum usually have an intense interest in art, music, theatre, engineering, and science. A museum that fosters their interest is a great experience for parents and their child. The child has an awareness you don't normally see in daily routine interactions. Friendships can develop around a common interest.

Quinn - I think it's best to expose children to various settings including museums because they may just surprise you.

Silverstein - They may have even more exciting experience than we did. It may open the child up.

Cullen - If a child enjoys science and history, a museum would likely be a good place to spend the afternoon, especially if there are opportunities for interactivity.

Davis - There are a lot of good sensory activities but there are many exhibits that are too loud, too bright and then too dark.

Sheeley - DaVinci Science Center in Allentown. Love the Lehigh Valley Zoo because it is low key and is a great for us. I also recommend summer festivals for learning history, like an outdoor museum. These have lots of hands-on learning: Goschenhoppen Festival, Blueberry Festival in Bethlehem, Kutztown Folk Festival.

Q12. Please leave any other comments or insight you'd like to share about your museum visit with your child here:

Cunningham - April has a great time visiting museums. We foster her interest in "The Arts." We hope she can develop lasting friendships around her interests.

Quinn - Although he couldn't take in the informative information about the exhibit, he enjoyed taking in the sights because they were new and visually stimulating, therefore he had much excitement.

Silverstein - Kyle was really excited about going to PAFA to see the Civil War areas. After there were no real Civil War items: military items, uniforms, flags, and things of that nature, he got bored. We should have visited all the other areas first and saved the most wanted to view area for last. There were several pieces in the Samuel M.V. Hamilton Building he really liked!

Sheeley - Rebecca had pretty consistent social behavior throughout - didn't matter if it was an area of interest or not. Like any child, she let me know she was "ready to move on" in areas of the museum that were not of interest to her - was polite and patient about it. By chance, we bumped into a dad and son who had been in Rebecca's semi-private swim lesson for ~2 years. Although she was young when she was in that lesson she remembered him. When I asked if she wanted to go over to him, she didn't want to have anything to do with it. I'd rate her interactions with him in swim class as parallel - not interactive - but I was a little surprised she wouldn't even go over to see him after not seeing him for a while. Also, she was moderately interactive with museum employees.

(Demographics)

Q13. Age

April Cunningham, age 7

Desmond Quinn, age 6

Kyle Silverstein, age 12

Ryne Cullen, age 9

Julian Davis, age 10

Rebecca Sheeley, age 11

Q14. Zip Code

April Cunningham, 19342

Desmond Quinn, 19149

Kyle Silverstein, 19142

Ryne Cullen, 19014

Julian Davis, 19060

Rebecca Sheeley, 18081

Q15. Gender

A. Male (4/6)

B. Female (2/6)

Q16. What type of classroom setting does your child partake in?

- A. General education classes (2/6)
- B. Special education classes (0/6)
- C. A mix of both general and special education classes (3/6)
- D. My child attends a special needs school (0/6)
- E. Homeschool (1/6)

Q17. Are you and your family museum members? Please circle: YES or NO

Only 1/6 said, “Yes”.

Q17A. If yes, at what museum(s)?

Cunningham - The Delaware Children's Museum, the Philadelphia Zoo, Tyler Arboretum, and the Upper Darby Performing Arts Center.

Q18. How many times in the past year have you and your family visited a museum?

- A. 1-3 (3/6)
- B. 4-6 (2/6)
- C. 7-9 (1/6)
- D. 10+ (0/6)